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AGRICULTURAL  
STATISTICS SERVICE

# RICULTURAL CHEMICAL USAGE 1996

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1996

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## AGRICULTURAL CHEMICAL USAGE 1996

This report for 1996 continues the series of annual Field Crops Summaries issued by the National Agricultural Statistics Service (NASS) containing on-farm agricultural chemical use statistics. The data presented in this report are part of the data series on chemical use funded through the Water Quality Initiative.

The Water Quality Initiative is a multi-agency program designed to provide information for farmers, ranchers, and foresters to address on-farm and off-farm environmental issues. In the past, there has been an inadequate amount of farm-level data to determine the magnitude of water quality problems or to permit an assessment of alternatives for farmers and other affected

parties. This report and other agricultural chemical reports help fill the needs of analysts evaluating the complex environmental issues of the 1990's.

NASS is responsible for collecting on-farm agricultural chemical use information to support the evaluation of water quality and food safety issues. The Economic Research Service (ERS) conducts research on the impact of alternative pesticide regulations, policies, and practices.

Included in this report is farm use of fertilizers and pesticides during 1996 on wheat. The use of trade names in this publication is for information only and should not be construed as a recommendation by NASS.

## WINTER WHEAT: Fertilizer and Pesticide Applications, Total Acreage and Percentage Receiving Applications, Major States and Total, 1995-96

State	Area Harvested		Area Receiving Fertilizer 1/						Area Receiving Pesticide 2/					
	1995	1996	Nitrogen		Phosphate		Potash		Herbicide		Insecticide		Fungicide	
	1,000 Acres		1995	1996	1995	1996	1995	1996	1995	1996	1995	1996	1995	1996
			Percent						Percent					
CO	2,700	2,200	62	77	23	38	--	--	51	61	--	11	--	--
ID	770	860	94	97	69	48	8	15	90	80	--	--	--	--
KS	11,000	8,800	90	94	61	65	7	--	61	47	--	7	--	--
MT	1,370	1,980	89	82	82	80	29	12	99	93	--	--	--	--
NE	2,100	2,100	80	86	42	51	--	--	53	61	--	--	--	--
OK	5,200	4,900	96	75	58	45	12	11	50	35	17	27	--	--
OR	825	850	98	100	17	10	10	5	98	99	--	--	10	8
SD	1,520	1,580	53	78	43	65	--	--	63	65	--	--	--	--
TX	2,800	2,900	73	78	36	31	9	--	32	27	23	38	--	--
WA	2,150	2,350	96	100	30	25	10	10	93	96	--	--	--	8
Total	34,265	28,520	86	86	54	51	16	4	56	56	5	12	1	1

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

2/ Refers to acres receiving one or more applications of a specific pesticide class.

-- Insufficient reports to publish data.

## SPRING WHEAT: Fertilizer and Pesticide Applications, Total Acreage and Percentage Receiving Applications, Major States and Total, 1995-96

State	Area Planted		Area Receiving Fertilizer 1/						Area Receiving Pesticide 2/					
	1995	1996	Nitrogen		Phosphate		Potash		Herbicide		Insecticide		Fungicide	
	1,000 Acres		1995	1996	1995	1996	1995	1996	1995	1996	1995	1996	1995	1996
			Percent						Percent					
MN	2,250	2,550	95	98	90	87	72	48	97	96	--	--	--	--
MT	3,950	4,200	78	83	72	78	17	9	90	76	--	--	--	--
ND	8,300	9,600	88	90	80	78	14	24	94	92	--	--	--	--
Total	15,750	16,350	87	89	78	79	23	24	94	88	3	--	3	--

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

2/ Refers to acres receiving one or more applications of a specific pesticide class.

-- Insufficient reports to publish data.

## SURVEY PROCEDURES

The information presented in this publication is a result of data compiled from sample surveys conducted during the 1996 crop year. Chemical use data were collected on spring and winter wheat beginning in late September after the harvest of spring and winter wheat.

A random sample of fields was selected for each crop so that the probability of selecting a particular field was directly proportional to the total acres planted to that crop. Thus, each acre planted to a crop had exactly the same chance of selection. For winter wheat, the selection was based on acres for harvest rather than acres planted.

Sample fields were selected using information obtained through a survey of farm operators conducted earlier in the year.

Operators of the sample fields were personally interviewed to obtain information on chemical applications made to those selected fields. The survey obtained chemical application data by product name or trade name. A thorough review compared reported data with manufacturer's label recommendations and with data from other farm operators using the same product. Following this review, product information was converted to an active ingredient level. The chemical usage estimates in this publication consist of survey estimates of those active ingredients.

## TERMS AND DEFINITIONS

Agricultural chemicals refer to ingredients in both fertilizer and pesticide products. Fertilizer in this report refers to applications of the primary nutrients, nitrogen, phosphate, and potash.

Pesticides include any substance of mixture of substances intended for preventing, destroying, repelling or mitigating any pest, and any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant. Pests targeted by pesticides include weeds, insects, fungi, and other forms of life.

Herbicides, insecticides, fungicides, and other chemicals make up the four classes of pesticides presented in this report. Miticides and nematocides are included as insecticides while soil fumigants, growth regulators, defoliants, and desiccants are included as other chemicals. This report excludes pesticides used for seed treatments, and post-harvest applications to the commodity.

Active ingredient is the specific chemical which kills or controls the target pests. Usage data, that are reported by pesticide product, are converted to an amount of active ingredient. Some active ingredients have more than one way of being converted. For example, in this report copper compounds are expressed in their metallic copper equivalent, and others such as glyphosate and 2,4-D in their acid equivalent.

Trade name is the actual product name given to a specific formulation of a pesticide product. A formulation contains a specific concentration of the active ingredient, carrier materials, and other ingredients such as emulsifiers and wetting agents. Some formulations, as in the case of pre-mixes, can contain more than one active ingredient. Common name is the published name for the active ingredient.

Rate per application refers to the average number of

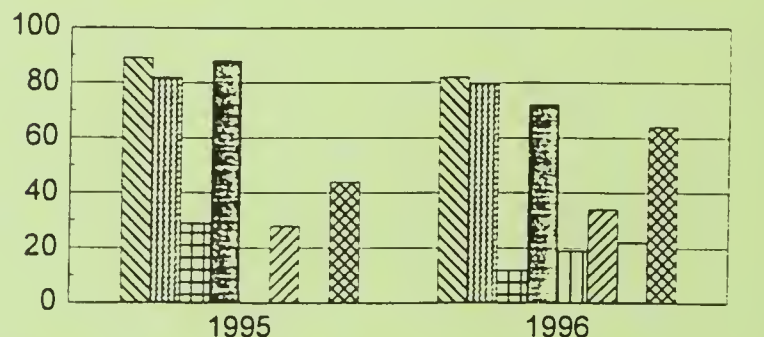
pounds of fertilizer primary nutrient or pesticide active ingredient applied to an acre of land in one application. Rate per crop year is the average number of pounds of an ingredient applied to one acre of land counting multiple applications. Number of applications is the average number of times a treated acre receives a specific agricultural chemical.

Area applied represents the percent of crop acres receiving one or more applications of a specific ingredient. This report does not contain acre treatments. However, acre treatments can be calculated by multiplying the acres planted, by the percent of area applied, and the average number of applications.

Crop year refers to the period immediately following harvest for the previous crop through harvest of the current crop.

### Montana Winter Wheat Ag Chemical Applications

Percent of Area Applied

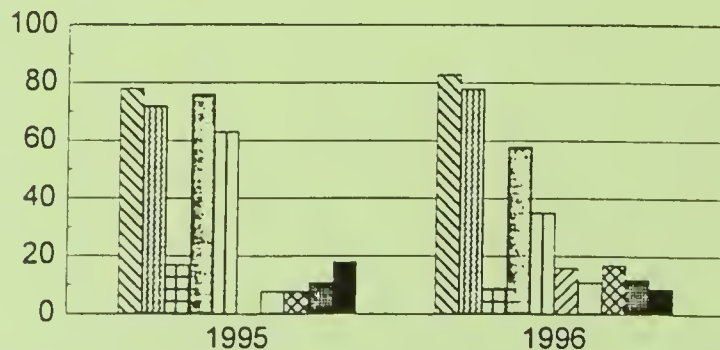


Nitrogen    Phosphate    Potash    2,4-D  
 Bromoxynil    Dicamba    MCPA    Metsulfuron-methyl

\*Bromoxynil and MCPA not available for 1995.

### Montana Spring Wheat Ag Chemical Applications

Percent of Area Applied



Nitrogen    Phosphate    Potash    2,4-D    Dicamba  
 Glyphosate    MCPA    Metsulfuron-methyl    Triallate    Trialsulfuron

\*Glyphosate not available for 1995.



**WINTER WHEAT: Agricultural Chemical Applications, Montana, 1995-96 1/**

Agricultural Chemical 2/	Area Applied 3/		Applications		Rate per Application		Rate per Crop Year		Total Applied	
	1995	1996	1995	1996	1995	1996	1995	1996	1995	1996
	Percent		Number		Pounds per Acre		Pounds per Acre		Million Lbs.	
Fertilizers:										
Nitrogen	89	82	1.6	1.6	35	32	57	53	69.7	84.7
Phosphate	82	80	1.0	1.0	27	30	28	30	31.3	46.9
Potash	29	12	1.0	1.1	12	16	12	17	4.7	4.3
Herbicides:										
									(000) Lbs.	
2,4-D	88	72	1.1	1.1	.34	.41	.37	.44	449	626
Bromoxynil	--	19	--	1.0	--	.22	--	.22	--	82
Dicamba	28	34	1.0	1.2	.08	.10	.08	.12	32	79
Glyphosate	--	30	--	1.0	--	.50	--	.52	--	310
MCPA	--	22	--	1.0	--	.23	--	.23	--	97
Metsulfuron- methyl	44	64	1.0	1.0	.004	.004	.004	.004	2	5
Triallate	--	7	--	1.0	--	1.46	--	1.46	--	203

1/ Area harvested in 1995 for Montana was 1.37 million acres and 1.98 million acres in 1996.

2/ Insufficient reports to publish data for the following agricultural chemicals: 1996, Herbicides: Chlorsulfuron, Clopyralid, Difenzoquat, Imazamethabenz, MCPA, Picloram, Triasulfuron, Tribenuron-methyl; Insecticides: Chlorpyrifos; Fungicides: Propiconazole 1995: Herbicides: Bromoxynil, Chlorsulfuron, Diclofop-methyl, Difenzoquat, Fenoxaprop-ethyl, Glyphosate, MCPA, Picloram, Thifensulfuron, Triallate, Tribenuron-methyl; Insecticides: Lambdacyhalothrin. 3/ Refers to acres receiving one or more applications of a specific agricultural chemical. -- Insufficient reports to publish data. Note: Data may not multiply across due to rounding.

**OTHER SPRING WHEAT: Agricultural Chemical Applications, Montana, 1995-96 1/**

OTHER STRONG WHEAT: Agricultural Chemical Applications: Montana, 1995 to 1996										
Agricultural Chemical 2/	Area Applied 3/		Applications		Rate per Application		Rate per Crop Year		Total Applied	
	1995	1996	1995	1996	1995	1996	1995	1996	1995	1996
	Percent		Number		Pounds per Acre		Pounds per Acre		Million Lbs.	
Fertilizers:										
Nitrogen	78	83	1.3	1.6	30	32	38	50	118.2	173.5
Phosphate	72	78	1.0	1.0	23	27	23	27	64.8	89.6
Potash	17	9	1.0	1.0	16	9	16	9	10.8	3.6
Herbicides:										
									(000) Lbs.	
2,4-D	76	58	1.0	1.0	.39	.35	.41	.35	1,223	864
Dicamba	63	35	1.0	1.1	.06	.06	.06	.06	153	94
Glyphosate	--	16	--	1.1	--	.34	--	.35	--	232
MCPA	8	11	1.0	1.0	.32	.36	.32	.36	108	169
Metsulfuron- methyl	8	17	1.0	1.0	.004	.003	.004	.003	1	2
Triallate	11	12	1.0	1.0	.99	1.19	.99	1.19	423	597
Trialsulfuron	18	9	1.0	1.0	.01	.009	.01	.009	10	4

1/ Area planted in 1995 for Montana was 3.95 million acres and 4.2 million acres in 1996.

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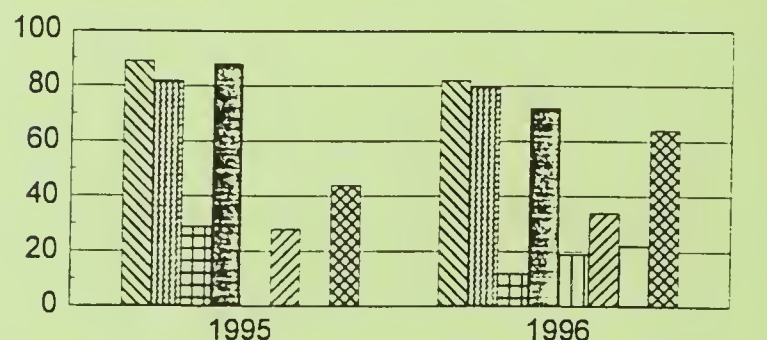
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### Montana Winter Wheat Ag Chemical Applications

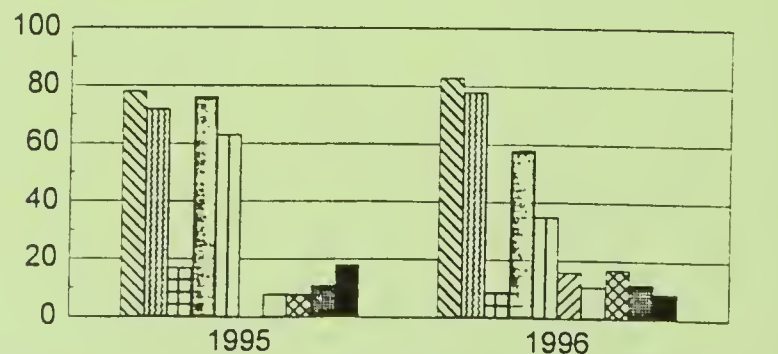
Percent of Area Applied



Nitrogen Phosphate Potash 2,4-D  
 Bromoxynil Dicamba MCPA Metsulfuron-methyl  
 \*Bromoxynil and MCPA not available for 1995.

### Montana Spring Wheat Ag Chemical Applications

Percent of Area Applied



Nitrogen Phosphate Potash 2,4-D Dicamba  
 Glyphosate MCPA Metsulfuron-methyl Triallate Trialsulfuron  
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Phosphate	82	80	1.0	1.0	27	30	28	30	31.3	46.9
Potash	29	12	1.0	1.1	12	16	12	17	4.7	4.3
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Bromoxynil	--	19	--	1.0	--	.22	--	.22	--	82
Dicamba	28	34	1.0	1.2	.08	.10	.08	.12	32	79
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# OTHER SPRING WHEAT: Agricultural Chemical Applications, Montana, 1995-96 1/

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	1995	1996	1995	1996	1995	1996	1995	1996	1995	1996
	Percent		Number		Pounds per Acre		Pounds per Acre		Million Lbs.	
Fertilizers:										
Nitrogen	78	83	1.3	1.6	30	32	38	50	118.2	173.5
Phosphate	72	78	1.0	1.0	23	27	23	27	64.8	89.6
Potash	17	9	1.0	1.0	16	9	16	9	10.8	3.6
Herbicides:										
									(000) Lbs.	
2,4-D	76	58	1.0	1.0	.39	.35	.41	.35	1,223	864
Dicamba	63	35	1.0	1.1	.06	.06	.06	.06	153	94
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## TRADE NAMES, COMMON NAMES, AND CLASSES

The following is a list of common names of active ingredients with the associate class and trade name. The classes are herbicides (H), insecticides (I), fungicides (F). This list is provided as an aid in reviewing pesticide data. Pre-mixes are not listed. The list is not complete and NASS does not mean to imply use of any specific trade name.

Class	Common Name	Trade Name
H	2,4-D	Several
H	Bromoxynil	Buctril, Brominal
H	Chlorpyrifos	Lorsban, Dursban
H	Chlorsulfuron	Glean
H	Dicamba	Banvel
H	Diclofop-methyl	Hoelon
H	Difenzoquat	Avenge
I	Disulfoton	Di-Syston
H	Diuron	Karmex, Direx
H	Fenoxaprop-ethyl	Whip, Option
H	Glyphosate	Roundup, Ranger, Rattler, Rodeo
H	Imazamethabenz	Assert
H	MCPA	Several
H	Metribuzin	Sencor, Lexone
H	Metsulfuron-methyl	Ally
I	Permethrin	Ambush, Pounce
H	Picloram	Tordon
F	Propiconazole	Tilt, Banner, Orbit
H	Terbutryn	Igran
F	Thiabendazole	Mertect
H	Thifensulfuron-methyl	Pinnacle
F	Thiophanate-methyl	Topsin
H	Triallate	Far-Go
H	Triasulfuron	Amber
H	Tribenuron-methyl	Express
H	Trifluralin	Treflan, Trilin, Trific